

ABSTRACT

5 A drill pipe having a box end having a tapered thread, and an
internal shoulder and an external face for engagement with a drill pipe
pin end having a tapered mating thread, and an external shoulder and an
external face adapted for data acquisition or transmission. The relative
dimensions of the box and pin ends are precisely controlled so that
when the tool joint is made up, a repeatable reference plane is
established for transmitting power and tuning downhole sensors,
10 transducers, and means for sending and receiving data along the drill
string. When the power or data acquisition and transmission means are
located in the tool joint, the dimensions of the tool joint are further
proportioned to compensate for the loss of cross-sectional area in order
maintain the joints ability to sustain nominal makeup torque.